



## Death Valley Weather Station Observation Changes



On November 2, 2015 the National Weather Service will commission the usage of the automated Campbell Scientific weather station at the Furnace Creek Visitor's Center in Death Valley National Park. This will make the automated weather station the official primary observing system for Death Valley. This will result in a change to how the weather observations at Death Valley are collected as well as reported for the historical climate record.

### **What Will This New System Consist Of?**

The fully automated Campbell Scientific station consists of a temperature sensor, humidity sensor, tipping bucket-style precipitation gauge as well as an anemometer and wind vane. This will provide more weather parameters than ever to track the weather in one of the world's most extreme climates.

### **Will The Legacy Weather Station Go Away?**

Not entirely. The long standing white painted wooden shelter housing the liquid in glass thermometers as well as the 8 inch manual rain gauge will remain on site. These will serve as an official back-up to the automated station in the event of an equipment failure or power outage. Thus some human supplement to the observations will still occur to ensure an accurate climate record is maintained.

### **What Time Will The New Observations Be Taken At?**

Currently weather observations are taken at Death Valley with an official time of 8:00 AM Local Time each day. The practice of taking observations once per day has been ongoing since a weather station was established at Greenland Ranch in 1911. When the park service took over observations in the 1950s and the weather station was later relocated to the then new visitor center at Furnace Creek this practice continued. The new observation time will now be at Midnight Local Standard Time each day.



**The new Campbell Scientific Weather station at Furnace Creek.**

### **Why Is This Switch Occurring?**

The current weather observations are collected in a manner which creates a significant issue with recognizing what date a value belongs to. The current values represent what is known in the historic record as an "observational date" which represents a 24 hour period from 8:00 AM to 8:00 AM. This creates considerable debate to when a high temperature value occurred. Many media sources time shift the high back to the previous date when an observation is taken at 8:00 AM to more accurately reflect to the public when a high temperature really occurred. In a pure scientific stance, this creates some concern as to when a value was observed and thus confusion. As a result, shifting the

observations to reflect a calendar day will end the question of what date was it 128 degrees in the official record. This will also make it easier for the public to understand and make it truly more representative of what naturally happened.

The legacy thermometers are liquid in glass, which are subject to splitting. This can result in missing readings. The maximum thermometer which records the high contains mercury which is a hazardous substance. In addition, Death Valley requires special thermometers due to the extreme heat this site experiences in the summer. These liquid-in-glass thermometers have become increasingly hard to obtain in recent years. The new automated Campbell Scientific station has a temperature sensor that can read to 140 degrees.

The switch to an automated weather station will make reporting the weather observations easier when the National Park Service staff has other duties to perform such as assisting visitor enquiries or emergency situations.

### **Has This New Station Been Tested?**

Yes. This new station was installed in April of 2012. Temperature and precipitation data was collected and analyzed by the staff at the National Weather Service in Las Vegas to look for any biases and to judge its accuracy. The automated station was operating on June 30, 2013 and measured a high of 129 degrees which is exactly what was reported by the mercurial maximum thermometer in the instrument shelter.



**The weather station at Furnace Creek in Death Valley National Park.**

### **What About Evaporation Data?**

With the change to the automated station, evaporation data will cease being collected in

Death Valley at this time. The current evaporation pan and wind sensor will be removed. Collection of this data is a labor intensive task for the park rangers to collect on a daily basis. In addition, the original concept of studying evaporation was largely based on the needs of the 1950s when little was understood about how this occurred in a desert environment.

### **Questions! or Comments?**

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